



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

D-1534

Applicant : Tatsuya Araki et al.
Title : X-RAY EQUIPMENT
Serial No. : 10/673,386
Filed : September 30, 2003
Group Art Unit : 2882
Examiner : Chih-Cheng Glen Kao

Hon. Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

August 4, 2005

APPEAL BRIEF

Sir:

This is an appeal from the final rejection of the Examiner dated April 27, 2005. A credit card authorization form in the amount of \$500.00 is attached herewith for the appeal brief fee.

REAL PARTY IN INTEREST

The applicant is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1 and 9 stand rejected in their respective forms. Claims 2-8 stand objected to as being dependent upon rejected independent base claim 1, but allowable if written in independent
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form including all the limitations of the independent base claim 1.

Accordingly, claims 1-9, as reproduced in the Claims Appendix hereof in their entirety, are all of the claims currently pending and at issue.

STATUS OF AMENDMENT

Of pending claims 1-9, claims 1 and 9 were *finally rejected* in the final Office Action dated April 27, 2005. In the same final Office Action, claims 2-8 were objected to as being dependent upon rejected independent base claim 1, but allowable if written in independent form including all the limitations of the independent base claim 1.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to X-ray equipment that includes a cassette storage box to house radiographic storage medium, such as film.

Applicant's admitted prior art is set forth in pages 1, 2 of the specification, and Figs. 8-10. Referring to Fig. 8 and 10, the conventional X-ray cassette includes a mobile carriage 51, and a cassette storage box 52 rotatable about axis 56 to open from the closed position shown in Fig. 8 to the open position shown in Fig. 10. A hook 53, spring 55 and pin 54 assembly is used to keep the cassette storage box in the closed position shown in Fig. 8. Specifically, spring 55 used to exert downward pressure on the hook 53 against pin 54 in the closed position.

The device has the disadvantage of requiring two-handed operation. For an operator to achieve the open position shown in Fig. 10, wherein the film can be inserted, one hand must be used to unhook the hook 53 from the pin 54 by applying an upward pressure against the downward urging of spring 55, and the other hand must be used to draw back the handle 52A. In the open position of Fig. 10, the operator must continue to hold onto the handle 52A, while simultaneously holding up the hook 53, against the pressure of

spring 55, to keep the hook from being pushed down to the locked state of Fig. 8. (specification, page 2, paragraph 0006)

Referring to Applicant's Fig. 1, a self-propelled movable carriage 1 has an X-ray tube mounted to it. A cassette storage box 3 opens and closes for adding and removing a film cassette 4. Referring to Applicant's Fig. 2, cassette storage box 3 can be opened and closed in relation to carriage 1 by rotation about axis 8.

A storage box locking means 9 includes hook 12 for latching pin 10 against the force of a spring 15. A locking release holding means 14 includes spring 15, stopper 16 and opening 17. Spring 15, provided on the side surface of carriage 1, is mounted at one end by movable spring engagement piece 19 to hook 12, and on the other end to an immovable spring engagement projection 18, the latter being mounted onto carriage 1. Hook 12 may rotate about axis 13.

The foregoing assembly is uniquely devised such that when hook 12 engages pin 10, axis 13 is positioned above spring 15, but when hook 12 is away from pin 10, axis 13 is below spring 15. (specification, page 10, paragraph 0029) In addition, upon lifting of hook 12, to open cassette storage box 3, stopper 16 on hook 12 is prevented from rising higher than the internal ceiling of opening 17, thereby preventing hook 12 from lifting further. The result is a structure where without any intervention by an operator, hook 12 stays open, or in the higher position, i.e., does not return to the locking position, even when the cassette storage box is in the open position as shown in Fig. 5.

One embodiment of the present invention includes a self-locking switching apparatus 20. This apparatus includes a boss 21 and a lever 22. Boss 21 is mounted on carriage 1 and moves freely within an opening 24 on cassette storage box 3, as the cassette storage box 3 is made to open or close with respect to carriage 1. The foregoing movement of boss 21 moves lever 22 to the position shown in Fig. 6(a) upon opening, and to the position shown in Fig. 6(b) upon closing. In reference to Fig. 6(b), the movement of lever 22 pushes the top side of the lever 22A against hook 12, causing hook 12 to rotate clockwise and engage pin 10.

Independent claim 1 sets forth the foregoing carriage, X-ray tube, storage box locking means, and the locking release holding means. The locking release holding means is attached to the storage box, and holds the storage box locking means in the released state.

Claim 2 is directed to the auto-locking feature for switching the locking means from the released state to the locked state when the cassette storage box is closed.

Claim 3 recites the hook and pin assembly of the locking means.

Claim 4 includes the feature of an elastic member that urges the hook to engage the pin in the locked state when locked, and away from the pin in the released state.

Claim 5 sets forth the auto-lock switching means to include the foregoing lever and boss assembly.

Claim 6 sets forth the attachment and support features for the pin and hook.

Claim 7 sets forth the locking release holding means in greater detail, including the spring, stopper and opening.

Claim 8 sets forth the boss and lever assembly in greater detail.

Claim 9 includes the feature of an elastic member that urges the storage box locking means in the locked state when locked, and in the released state when released.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,126,314 to Morasse (hereinafter "Morasse") in view of Applicant's admission of prior art.

ARGUMENT

Claims 1 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,126,314 to Morasse (hereinafter "Morasse") in view of Applicant's admission of prior art. Applicant's admitted prior art is taken from Applicant's

"Background of the Invention and Related Art Statement, constituting pages 1 and 2 of Applicant's specification, and accompanying Figs. 8-10. The rejection is respectfully traversed.

Morasse teaches a mobile radiography device having a chassis 1 resting on rear fixed-axle wheels 2 and front wheel 3. Referring to Morasse's Fig. 1, chassis 1 has an upper face 4 and a rear face 5, the latter having housing 6 for receiving mobile container 7. Container 7 has hollow upper face 11 for receiving cassettes, rear face 12, and lateral faces 13, 14. Referring to Morasse's Figs. 2 and 3, a protuberance 21 on lateral face 13 interacts with a ramp provided on the inside of the housing 6. The ramp has the profile shown in Fig. 4. Protuberance 21 moves from position A, when container 7 is in the closed position, to position B, when container 7 is in the open position. In position B, boss 23 serves as a stop for protuberance 21 to hold the container 7 in the open position. From the open position B, in order to separate container 7 from housing 6 completely, container 7 is lifted such that protuberance 21 rises above boss 23, and achieves position C of Fig. 4.

Referring to Applicant's claim 1, nowhere does Morasse disclose a storage box locking means, or any device to lock container 7 with housing 6. From the foregoing, the operator pushes or pulls handle 20, shown in Morasse's Figs. 2 and 3, to freely open and close the container, wherein the protuberance 21 navigates back and forth between positions A and B.

Accordingly, Morasses does no anticipate or hint at a locking release holding means attached to container 7, which must be taken as Applicant's claimed storage box, for "holding the storage box locking means in a released state so that the storage box locking means is released from the locked state."

The Office Action uses Applicant's own prior art teachings to overcome the foregoing shortcomings. There is no motivation provided in either reference for such a combination. Morasse has no storage box locking means, no locking release holding means, and provides no teaching that such features would or should be provided, other than possibly hindsight impermissibly garnered from

Applicant's own teaching. On the other hand, Applicant's admitted prior art provides no locking release holding means, and in fact clearly describes a problem in the prior art, namely that in the open position of the cassette storage box 52, as shown in Applicant's Fig. 10, the operator must continue to hold hook 53 in the open position against the force of spring 55, to prevent hook 53 from returning to the locked position. (specification, page 2, paragraph 0006)

It is indeed this very problem that Applicant's claim 1 solves through recitation of the locking release holding means that holds the storage box locking means in the release state such that the locking means is released from the locking state, as claimed. Referring to Applicant's admitted prior art, page 2, paragraph 0006, "when the gateway of the cassette storage box 52 is opened or closed, the operator has to pull and tilt the cassette storage box 52 or push back the cassette storage box 52 with one hand while the operator needs to lift up the hook 53 with the other hand *in order to keep releasing the hook 53 from the locked state.*" (emphasis added) The foregoing provides the disadvantage of requiring two-handed operation, as stated by Applicant.

Referring to Applicant's Fig. 3 embodiment, a locking release holding means 14 includes spring 15, stopper 16 and opening 17. Spring 15 is provided on the side surface of carriage 1. The spring 15 is mounted at one end by movable spring engagement piece 19 to hook 12, and on the other end to an immovable spring engagement projection 18, the latter being mounted onto carriage 1. Hook 12 may rotate about axis 13. This assembly is uniquely devised so that when hook 12 engages pin 10, axis 13 is positioned above spring 15, but when hook 12 is away from pin 10, axis 13 is below spring 15. Upon lifting of hook 12, to open cassette storage box 3, stopper 16 on hook 12 is prevented from rising higher than the internal ceiling of opening 17, which prevents hook 12 from lifting further. The result is a structure where without any intervention by an operator, hook 12 stays open, or in the higher position, i.e., does not return to the locking position, even when the cassette storage box is in the open position as shown in Fig. 5.

The applicant's admitted prior art section is in fact replete with the notion that the prior art lacks a device analogous to the claimed locking release holding means. Page 2 of the specification, paragraph 0003 states: "the hook 53 is always urged downwardly with a spring 55 provided on the carriage 51." Accordingly, in the prior art, the spring 55 must always be overcome by human force while the cassette storage box 52 is open (Fig. 10). Moreover, spring 55 cannot be used to keep the locking apparatus in an unlocked position, as illustrated in Applicant's Fig. 5. Accordingly, the device disclosed in Applicant's admitted prior art does not and cannot provide the claimed locking release holding means that holds the storage box locking means in the released state.

Therefore, other than through hindsight garnered from Applicant's own invention, neither Morass nor Applicant's admitted prior art, taken separately or in combination, includes a motivation to combine the references to yield Applicant's claimed invention. In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."). In less technologically complex cases, the very ease of which an invention may be understood may render one susceptible to the insidious effect of using the inventor's own teachings against its teacher. Id.

Claim 9, which depends from claim 1, is allowable for at least the foregoing reasons for which claim 1 is allowable, and the foregoing arguments are incorporated herein.

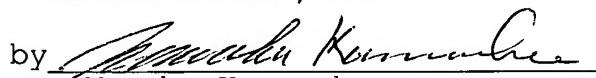
CONCLUSION

As explained above, the cited references do not disclose, suggest, or render obvious claims 1 and 9 of the present invention.

It is respectfully requested that the decision of the Examiner to reject claims 1 and 9 be reversed, and that claims 1 and 9 be presently allowed, rendering all of claims 1-9 allowable.

Respectfully submitted,

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CLAIMS APPENDIX

1. An X-ray equipment comprising:
a carriage,
an X-ray tube mounted on the carriage for irradiating X-rays,
a cassette storage box pivotally attached to the carriage for storing a cassette with a radiographic storage medium,
storage box locking means engaging the cassette storage box for locking the cassette storage box in a locked state, and
locking release holding means attached to the storage box locking means for holding the storage box locking means in a released state so that the storage box locking means is released from the locked state.
2. An X-ray equipment according to claim 1, further comprising auto-lock switching means attached to the storage box locking means for switching the storage box locking means from the released state to the locked state when the cassette storage box is closed.
3. An X-ray equipment according to claim 2, wherein said storage box locking means includes a pin and a hook to engage together in the locked state and to disengage from each other in the released state.
4. An X-ray equipment according to claim 3, wherein said locking release holding means includes an elastic member for urging the hook in a direction so that the hook engages the pin in the locked state, and for urging the hook in a direction so that the hook moves away from the pin in the released state.
5. An X-ray equipment according to claim 3, wherein said auto-lock switching means includes a lever for pushing the hook, and a boss for pushing the lever so that when the cassette storage box is closed, the boss pushes the lever to move the hook toward the pin to thereby allow the storage box locking means to switch from the released state to the locked state.

6. An X-ray equipment according to claim 3, wherein said pin is attached to the cassette storage box and said hook is rotatably supported on the carriage.
7. An X-ray equipment according to claim 6, wherein said locking release holding means includes a spring attached to the carriage for urging the hook in a direction so that the hook engages the pin in the locked state, and for urging the hook in a direction so that the hook moves away from the pin in the released state; a stopper provided on the hook; and an opening provided in the carriage for receiving the stopper to allow the hook to move in a limited angle so that the storage box locking means is held in the released state when the stopper abuts against an edge of the opening.
8. An X-ray equipment according to claim 7, wherein said auto-lock switching means includes a lever rotatably attached to the carriage for pushing the hook, and a boss attached to the cassette storage box for pushing the lever to rotate so that when the cassette storage box is closed, the boss pushes the lever to move the hook toward the pin to thereby allow the storage box locking means to switch from the released state to the locked state.
9. An X-ray equipment according to claim 1, wherein said locking release holding means includes an elastic member for urging the storage box locking means in the locked state when the storage box locking means is locked, and for urging the storage box locking means in the released state when the storage box locking means is released.

EVIDENCE APPENDIX

Additional evidence has not been applied.

RELATED PROCEEDINGS APPENDIX

There were no applicable related proceedings.